Amendments to the Specification

Please add the following new paragraph, inserted immediately after the title:

Cross Reference To Related Application

This application claims priority to PCT Application PCT/CA2004/000574, filed April 16, 2004.

Please replace the paragraph beginning at page 6, line 8 with the following amended paragraph:

At the heart of an optimized planermill is an improved planer ~~call~~ called an optimized planer. An optimized planer is a device that can position and/or reposition the desired cross-sectional profile most optimally within the rough workpiece during the planing operation based primarily on the physical properties of the incoming rough workpiece. The use of an optimized planer requires a new method of planermill operation and control. As discussed above, in this new optimized planermill a workpiece interrogation system, located upstream from the planer, measures the physical properties of each individual incoming rough workpiece. These physical properties are then used throughout the planermill process to:

Please replace the paragraph beginning at page 20, line 24 with the following amended paragraph:

Figure [[4]] 5 shows an alternative embodiment of the invention that is similar to the preferred embodiment with the following exceptions. In this optimized planermill the rough workpieces are fed directly from the tilt hoist onto a smooth transfer that delivers the rough workpieces in basically a sheet of rough workpieces onto the linear and transverse acceleration devices. The workpieces are accelerated towards the planer onto a planer infeed transport device and through a linear workpiece interrogator where data about the rough workpiece's physical properties is collected. This data is

transferred to the optimization system computer or computers where it is used to solve for and compute the unique optimized solution for each individual workpiece. The gap required between successive workpieces necessary to allow the resetting or repositioning of the guiding and/or cutting elements within the planer is established, monitored by workpiece sensing and, controlled and/or corrected as the workpieces travel on the linear acceleration, planer infeed transport and planer feed devices. Once the workpieces have traveled through the planer this embodiment is configured in the same way as the preferred embodiment.

Please replace the paragraph beginning at page 21, line 10 with the following amended paragraph:

Figure [[5]] <u>4</u> shows an alternative embodiment that is similar to the previous two embodiments except that a combination of transverse and linear workpiece interrogators are used to collect data about the rough workpiece's physical properties. It may be advantageous to use both workpiece interrogators because some physical properties are sensed more effectively by one type of interrogator over the other. It may also be possible that by using both types of workpiece interrogators the required gap time between pieces and overall throughput of the system can be enhanced.

Please replace the paragraph beginning at page 34, line 19 with the following amended paragraph:

In all of the transverse acceleration devices shown in Figures 17 through 22 the goal is to position the workpiece as close to the fence of the linear acceleration device as possible. This positioning of the workpieces near the fence of the linear acceleration device is called far side referencing. That is because the side of the workpiece being positioned next to the fence or reference line of the linear acceleration device is the side of the workpiece furthest from the face of the positioning lug. One can imagine that it could be possible to position the near face of the workpiece relative to and a set distance from the fence or reference line of the linear acceleration device. This would be known as near side positioning. Near side positioning may be ~~advantages~~

advantageous in some cases because the narrower workpieces do not have to be pushed all the way across to the fence of the linear acceleration device. If near side positioning is used, there is no need to vary the start and stop positions of the secondary lugs of the transverse acceleration device to compensate for various widths fo workpieces.

Please replace beginning at page 56, line 19 with the following amended paragraph:

The non-optimized planer system as shown in Figure 59 can be converted to a fully optimized planer system using any one of the three methods of gap control, (1) open loop non-optimized, (2) closed loop non-optimized, and (3) closed loop optimized, depending on how the component devices are modified, what other devices are added to the system and the level of workpiece sensing, computerized optimization and process control. The most desirable reconfiguration of the non-optimized planer system might be the following configuration ~~shown in Figure 60~~. In this example, the non-optimized planer system has been converted to a fully optimized planer system with closed loop optimized gap control. The conversion process involves the following modifications and additions to the non-optimized system: A short section of the smooth transfer deck is removed to allow the installation of a lug loader. The section of smooth transfer between the lug loader and the linear acceleration device is converted to a lug transfer by either adding lugs to the existing smooth top chain or replacing the chain with one that has lugs already attached. A variable speed drive is added to the smooth transfer deck and a separate variable speed drive is added to the lug transfer. A transverse workpiece interrogator is placed along the lug transfer. The individual rollers or groups of rollers in the linear acceleration device, planer infeed transport device and planer are fitted with variable speed drives. Work piece sensing devices are added to the system on and around the area where the lug transfer delivers the workpieces to the linear acceleration device, along the length of the linear acceleration device and planer infeed transport device and in and around the area of the planer. The necessary modifications are done to the planer machine in order to make the guiding and/or cutting

elements movable and able to resposition between workpieces including adding high speed positioning devices to all necessary planer elements. The necessary computerized process controls along with the workpiece optimization and gap optimization systems are added to control the now fully optimized planer system. There are numerous other combinations of modifying or adding devices to this system to convert it to an optimized system. If, for example, non-optimized gap control was desirable then the workpiece sensing and variable speed drives could be eliminated from the converted system. In any non-optimized planer system, it will be necessary if it is to be converted to optimized, to modify existing system devices and/or add new devices in order to establish and/or control and/or correct the minimum required gap between workpieces.

Please replace beginning at page 57, line 19 with the following amended paragraph:

Another example of converting a non-optimized planer system to an optimized planer system may be as shown in Figure [[61]] 60 and Figure [[62]] 61. The planer system shown in Figure [[61]] 60 is a non-optimized system that happens to have a very long planer infeed transport device. All of the speeds of the devices in this system are fixed speed and are set to feed the workpieces basically end-to-end with no gap between workpieces. Figure [[62]] 61 shows the system of Figure [[61]] 60 converted to an optimized planer system. In this example, there have been no modifications to the tilt hoist or the smooth transfer deck. However, the linear acceleration device along with the planer infeed transport device and planer have been fitted with variable speed drives. Individual rollers or groups of rollers have independent variable speed drives controlling their speed. A linear workpiece interrogator has been added to the system near the midpoint of the planer infeed transport device. Work piece sensing has been added to the system from the linear acceleration device to and through the planer. The necessary planer modifications have been made to allow the moving or relocation of the guiding and/or cutting elements within the planer between workpieces. A computerized optimization system along with a computerized process control system are added to

provide the workpiece optimized planer solutions and generally control the flow of workpieces going through the system including establishing and/or controlling and/or correcting the minimum required gap between workpieces.

Please replace item 9 on page 60, line 10, with the following line:

9. ~~Traverse~~ Transverse geometric scanner